Before putting the units into service, please fill the screw jack housing and the lead screw、screw nut with grease.

LINEAR MOTION

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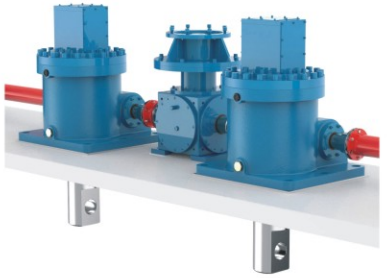
LINEAR MOTION

Lude Transmission

Machine Screw Jack
Operation & Maintenance Instructions



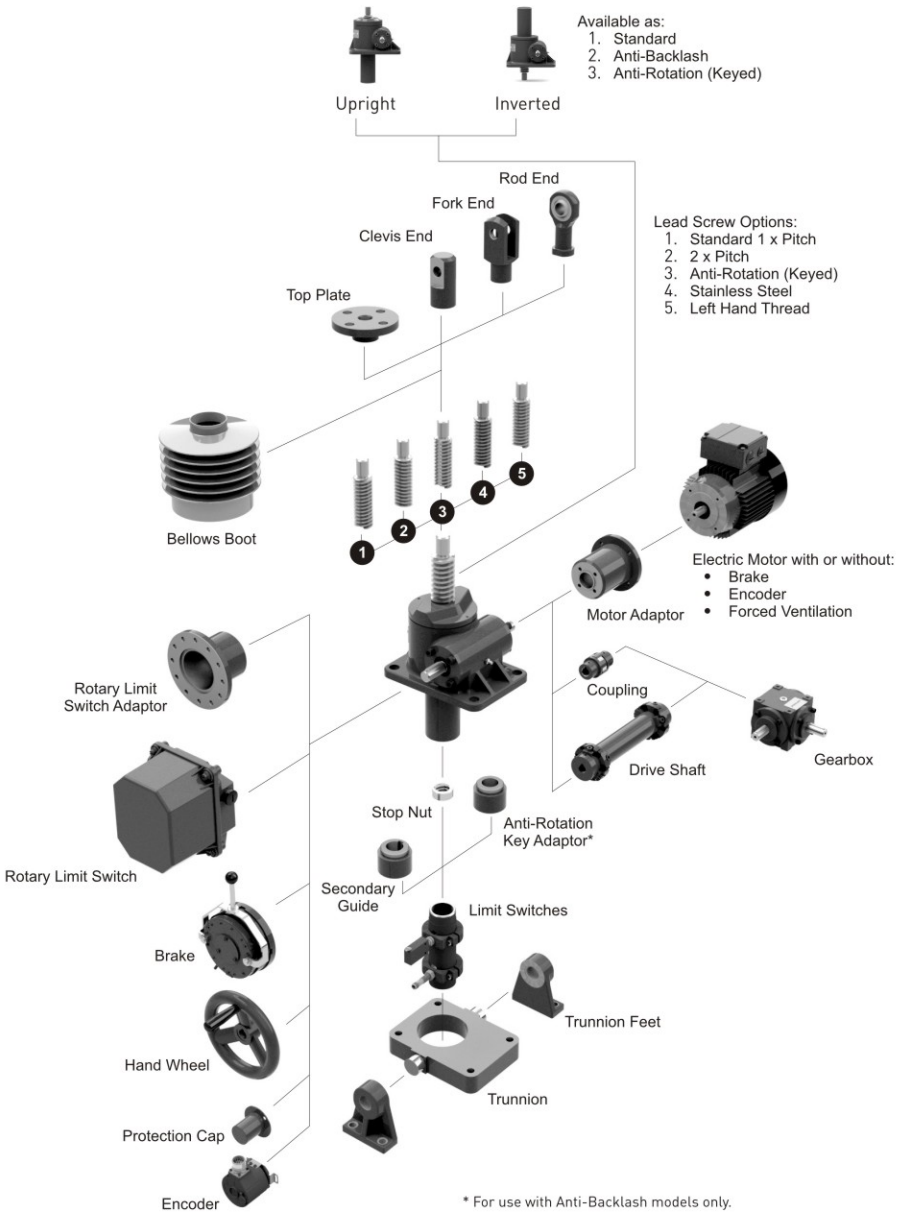
CONTENTS

This manual has to be considered as integrant part of the product; it includes the basic information for a proper installation, setting at work and daily maintenance of the screw jacks. Reading the short information reported in if you can obtain an appropriate knowledge of the product to prevent an anomalous use of the product itself, and to plan a correct maintenance.

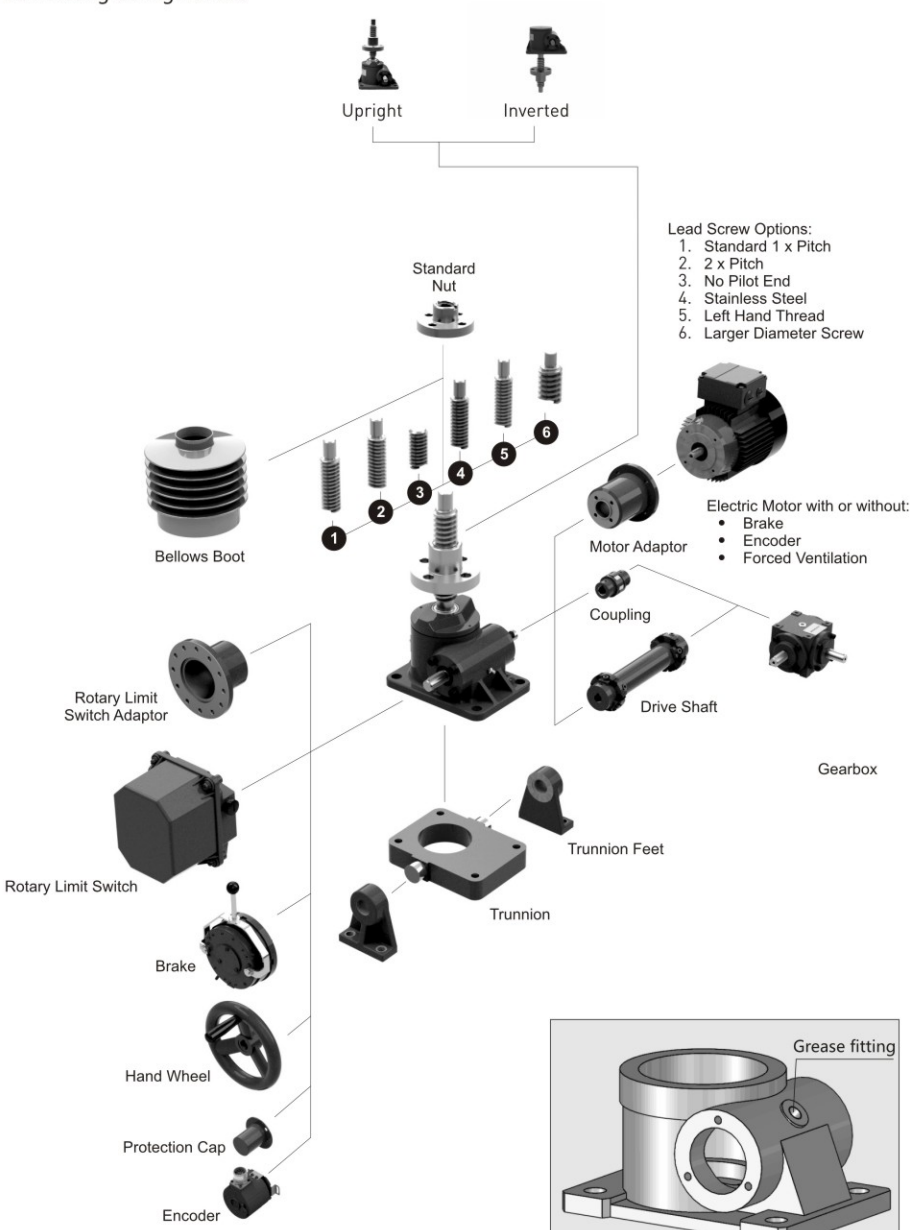
The non-compliance with the instructions indicated in the manual will cause the immediate invalidation of the warranty terms, and will completely release LUDE TRANSMISSION Co., Ltd from any responsibility for possible damages to things or people.

1 Explosive view

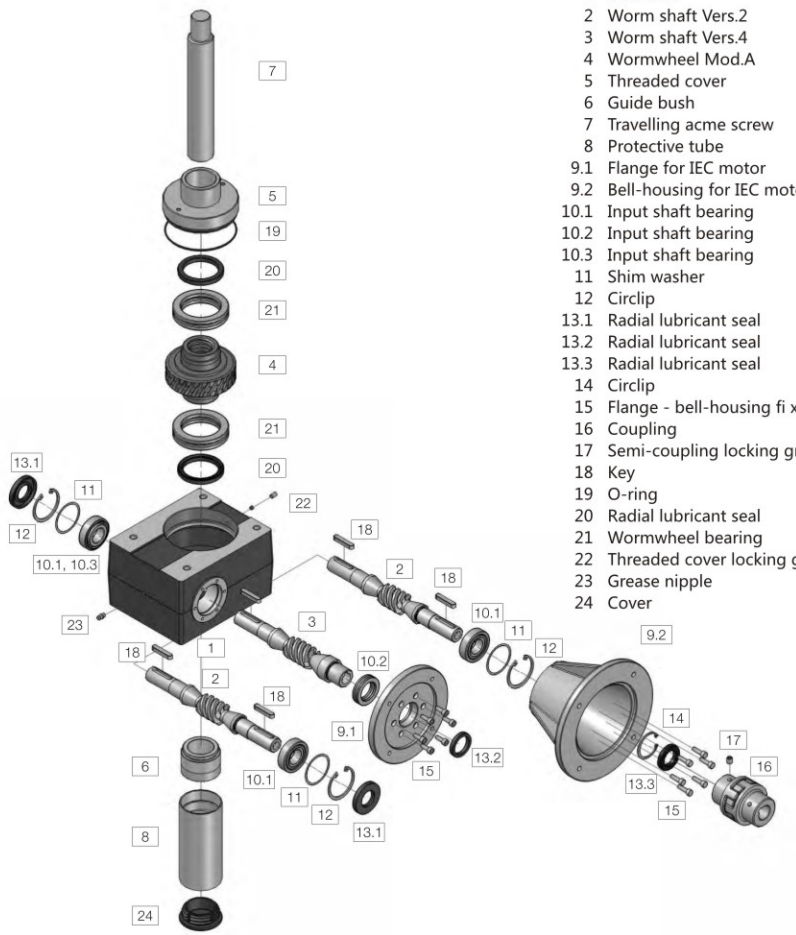
1.1 Translating configurations :



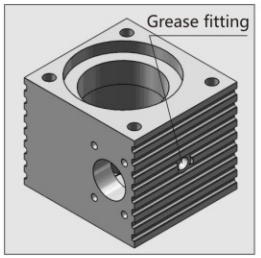
1.2 Rotating Configurations



1.3 Screw jacks SJ Series with travelling screw (Mod. A) - spare parts

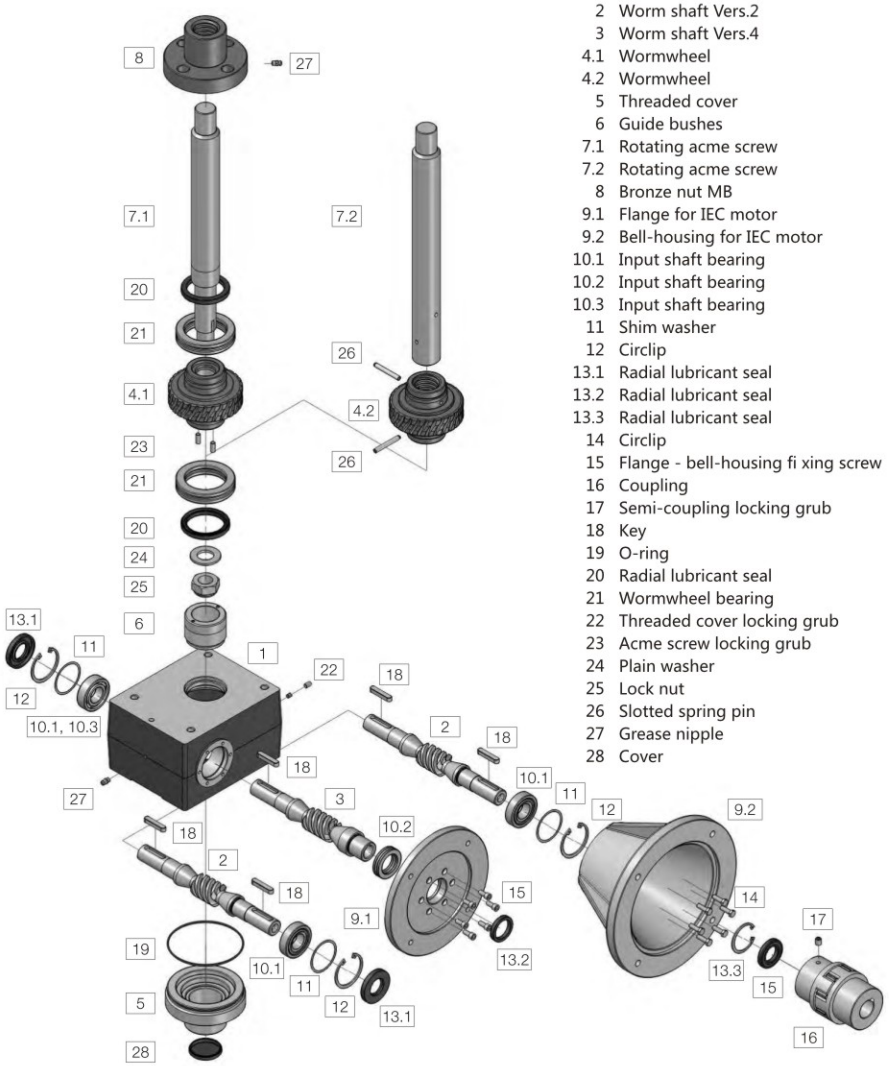


1 Gear box
2 Worm shaft Vers.2
3 Worm shaft Vers.4
4 Wormwheel Mod.A
5 Threaded cover
6 Guide bush
7 Travelling acme screw
8 Protective tube
9.1 Flange for IEC motor
9.2 Bell-housing for IEC motor
10.1 Input shaft bearing
10.2 Input shaft bearing
10.3 Input shaft bearing
11 Shim washer
12 Circlip
13.1 Radial lubricant seal
13.2 Radial lubricant seal
13.3 Radial lubricant seal
14 Circlip
15 Flange - bell-housing fi xing screw
16 Coupling
17 Semi-coupling locking grub
18 Key
19 O-ring
20 Radial lubricant seal
21 Wormwheel bearing
22 Threaded cover locking grub
23 Grease nipple
24 Cover



For spare parts orders we recommend you to refer to the relative product serial number, marked on the product label fixed on the screw jack housing.

1.4 Screw jacks SJ Series with travelling nut (Mod. B) - spare parts



1 Gear box
2 Worm shaft Vers.2
3 Worm shaft Vers.4
4.1 Wormwheel
4.2 Wormwheel
5 Threaded cover
6 Guide bushes
7.1 Rotating acme screw
7.2 Rotating acme screw
8 Bronze nut MB
9.1 Flange for IEC motor
9.2 Bell-housing for IEC motor
10.1 Input shaft bearing
10.2 Input shaft bearing
10.3 Input shaft bearing
11 Shim washer
12 Circlip
13.1 Radial lubricant seal
13.2 Radial lubricant seal
13.3 Radial lubricant seal
14 Circlip
15 Flange - bell-housing fi xing screw
16 Coupling
17 Semi-coupling locking grub
18 Key
19 O-ring
20 Radial lubricant seal
21 Wormwheel bearing
22 Threaded cover locking grub
23 Acme screw locking grub
24 Plain washer
25 Lock nut
26 Slotted spring pin
27 Grease nipple
28 Cover

For spare parts orders we recommend you to refer to the relative product serial number, marked on the product label fixed on the screw jack housing.

LINEAR MOTION
Lude Transmission-Provide linear motion system and ideal solutions

2 Introduction

2.1 Statement

The screw jacks are exclusively designed for carrying out linear motion movements in accordance with the specification detailed in LUDE TRANSMISSION product information and this maintenance manual.

Any other application other than specified or one going beyond the above mentioned capacity is unauthorised. The manufacturer is not liable for damages resulting from such applications. The user alone has to bear the risk.

Since the screw jacks can be applied in various areas, the user is responsible for the specific application of use.

The machine screw jacks have been designed to comply with Machinery Directive 2006/42/EC and with the relevant essential health and safety requirements as applies to the equipment itself. Where fitted, Electric Motors conform with Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.

2.2 Safety Instructions in The Operating Manual

	This symbol indicates potential dangers to people. Comply with the instructions in order to avoid injury.
	This symbol indicates potential dangers to the unit. Comply with the instructions in order to avoid damage to the unit.
	This symbol indicates special information on: The best possible use of the unit. How to facilitate operation of the unit.

2.3 Residual Risk and Hazards

Should a risk of damage to material or injury to persons remain despite the structural safety of the screw jack(s), the user must draw attention to such hazards by means of suitable warning notices and written instructions indicating safety precautions.

2.4 Operating Personnel

The screw jacks are designed according to state-of-the-art technology and are in line with applicable safety regulations. However, the general risks of personal injury or damage to property connected with the use of such machinery cannot be completely eliminated. Therefore the units may only be assembled and operated by competent and qualified personnel and only be used for the authorized application.

Therefore a careful study of this operating manual should be made before attempting to use or service the unit and particular attention should be paid to the safety instructions.

Work to be performed on electrical parts, such as:
- Installation of limit switches
- Mounting of the drive
- Check of the direction of rotation
- should only be carried out by qualified electricians.

The screw jacks and the installation should be inspected by the operating and supervising personnel for externally visible damage and defects at least once every shift. Any changes (including the operational conditions) which may affect the safety are to be reported immediately.

3 Installation

3.1 General Installation Notes

Before installing new parts, remove any rust preventative, protection grease etc.

Check before immediate installation for possible transit damage.

Components which have been stored for a long time (over 1 year) should be re-lubricated in working conditions before they are put into operation.

Before putting the screw jack(s) into service, the User must ensure that the plant in which it is installed complies with all applicable directives, especially those regarding health and safety at work.

Handle the screw jack with care. The screw jacks should be handled with care to avoid damaging the machined drive shafts and the threads of the lead screw.

Before putting the units into service, check the lubricant level. If necessary top up the lubricant to the required level.

Do not mix greases of different nature or specifications.

If the same type of grease already in use is not available, remove all of the existing lubricant completely and flush its interior thoroughly with a light solvent before refilling with a new lubricant.

The structure on which the screw jack(s) are mounted must have ample strength to carry the maximum load, and should be rigid enough to prevent undue deflection or distortion of the screw jack supporting members.

It is essential that the screw jack(s) be carefully aligned during installation so that the lead screw is running true and the connecting shafts are exactly in line with the input drive shafts.

When installing several screw jacks to move a common load/item/structure, the jacks should first be connected to the structure. The load should be equally distributed between the screw jacks. The screw jack input drive shafts should then be connected taking care not to turn the input shaft and lose the screw jack position relative to the structure.

After the screw jack(s) is installed, shafting, gearboxes, motors, etc., are coupled together it should be possible to turn the main drive by hand (no load on screw jacks). If there are no signs of binding or misalignment, the screw jack system is then ready for normal operation.

After the screw jack(s) are installed, they should be operated through their full travel four or five times under minimum load conditions. If the arrangement operates satisfactorily and there are no signs of binding or misalignment the screw jack(s) are ready for normal operation.

LINEAR MOTION
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3.2 Unpacking and installation

Remove the screw jack(s) from their container. Dispose of the packaging material and the desiccant in an environmentally friendly way.

If it is necessary and in order to avoid damages, please use soft straps to transport or mount the screw jack.

For translating screw jacks in order to avoid damages, do not attach the straps to the lead screw but to the lead screw end fitting, cover pipe or to the screw jacks gearbox. Where possible lift vertically.

For rotating screw jacks in order to avoid damages, do not attach the straps to the lead screw but to the nut on the lead screw or to the screw jacks gearbox. Where possible lift vertically.

3.3 Mounting

Before starting assembly work, check the directions of rotation of all jacks, gearboxes and drive motors with regard to the required direction of travel of each jack in the application.

All components must be carefully aligned, as alignment errors increase stress and power consumption and lead to overheating and premature wear.

When installing screw jacks, ensure that the mounting face is flat and square to the guides of the load, the position tolerance should meet the requirements of ISO2768-2-K class.

Before attaching the drive unit, the screw jack should be turned through its entire stroke by hand, without load. Variations in the amount of force required and/or marks on the screw or guides indicate alignment errors. Loosen the relevant mounting bolts and adjust positioning until the correct alignment is achieved.

All mounting bolts must be re-tightened after a short period of operation.

Mount the screw jack by fixing the screw jack body to the structure by either its standard base mounting points or via a mounting accessory like a trunnion. The screw end or nut should be fixed to the moving part of the structure (or vice versa).

Verify that the structural attachment that connects to the screw jack end fitting or nut is aligned throughout the screw jack stroke before connecting to the screw jack.

Take care when fitting couplings. A blow on a shaft end could cause gear set damage.

Shaft alignment is critical, check on installation.

Push the bellows over the lead screw and attach the collars with the jubilee clips provided. Be careful not to rip or tear the bellows boot.

3.4 Installation and setting at work

Check that the supporting surface of the fixing plane are clean and well machined, and that they fit the dimensions of the screw jacks base they have to be fixed to: mind the distance between the centres of the fixing and centre bores.

The supporting surfaces of the screw jack and of the load to be moved have to be parallel. In order to work properly, the screw jacks have to be subjected only to an axial load, so that the fit between acme screw and bronze nut is not alternated. (fig.1)

The presence of any not axial oriented or side load has to be considered previously during the designing, and then has to be properly faced with systems inside or outside the screw jack. Not considering this problem may endanger the proper working of the lifting system and the screw jack.(fig.2)

Check dimensionally the installation in order to make sure that the stroke to be done is consistent with the length of acme screw and that the safety dimensions at the ends of the stroke are kept. (fig.3)

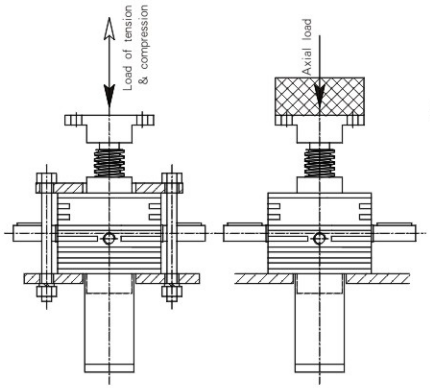

Fig.1

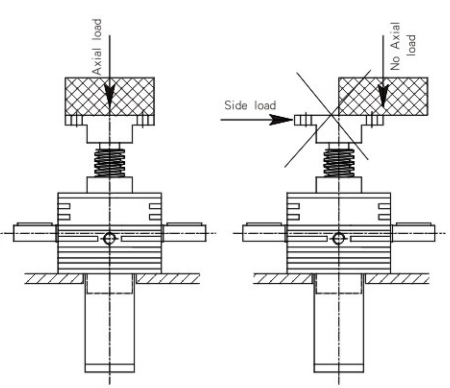

Fig.2

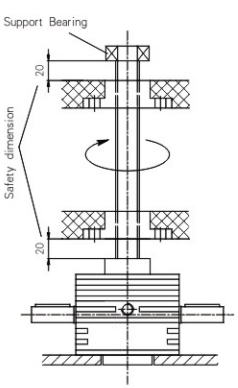

Fig.3

3.5 Assembly of traveling acme screw on screw jack type S:

—Make sure that acme screw is clean, the lead-in end is chamfered and that it dose not show any sharp or cutting edge;

—Keep the acme screw exactly align the nut axially and turn to reach the beginning of the lead-in of the threaded portion.

—When the installation has been carried out lubricate the acme screw on its whole length. (see section MAINTENANCE)

⚠ **ATTENTION:** The standard direction of the screwing of screws and nuts is right-handed; therefore, turn clockwise. Make sure that the portion of acme screw screwed on the screwed jack is at least equal to the height of the screw jack.

3.6 Assembling of rotating screw on screw jack type R:

—Screw jacks type R with rotating screw and external traveling nut need a fix of the acme screw to the worm wheel as shown here above on fig.3.

—Keep the nut exactly align the acme screw axially and turn clockwise to reach the beginning of the lead-in of the threaded portion.

—When the installation has been carried out lubricate the acme screw on its whole length. (see section MAINTENANCE)

⚠ **ATTENTION:** Acme screw by LUDE TRANSMISSION Co., Ltd are rounded off on both thread' s sides; any way, the assemblers have to pay attention, during the manual operation, to protect their hands by gloves to prevent any injuries.

3.7 Shifting directions of the screw jack

Check the direction of shifting of motor, reduction gear, possible bevel gear and screw jack. Position the screw jack with the motion input placed so that the turning of every part of the system is ensured as to lift or lower all lifting parts.

Fig.4 shows the transmission direction for a screw jack vers.1, right hand mounting, with right handed acme screw; the various versions and mounting are shown in the figures below, which show the top and the front view of the screw jack.

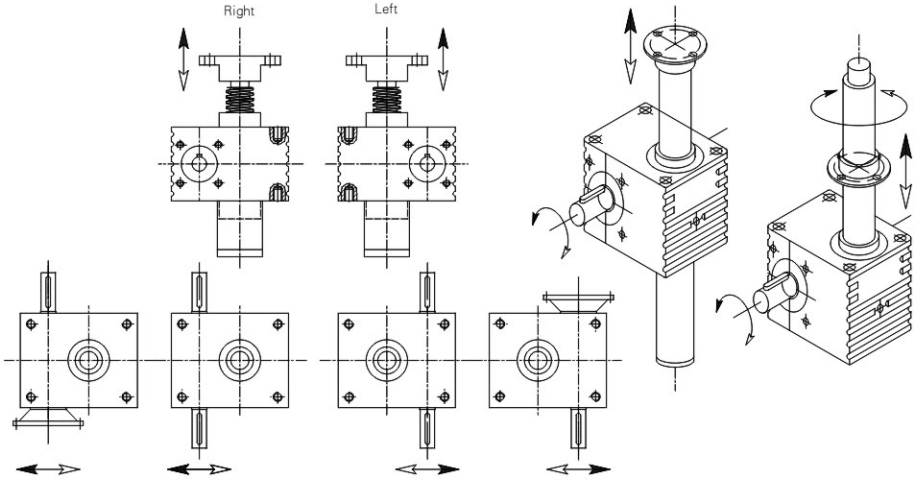

Fig.4

3.8 Fixing of the screw jack housing

Before fixing firmly the screw jack housing to the supporting surface, make sure that it is exactly aligned on the horizontal plane with other housings it will be connected with and that the acme screw axis is exactly at right angle to the fixing plane. The locking has to be carried out by making use of fixing bores which are in the screw jack housing.

Should the screw jacks be used for the lifting of platforms, therefore connected by long transfers of motion, drive shafts have to be aligned and supported so that any vibration or dangerous bending for the transmission should not occur. (fig 5)

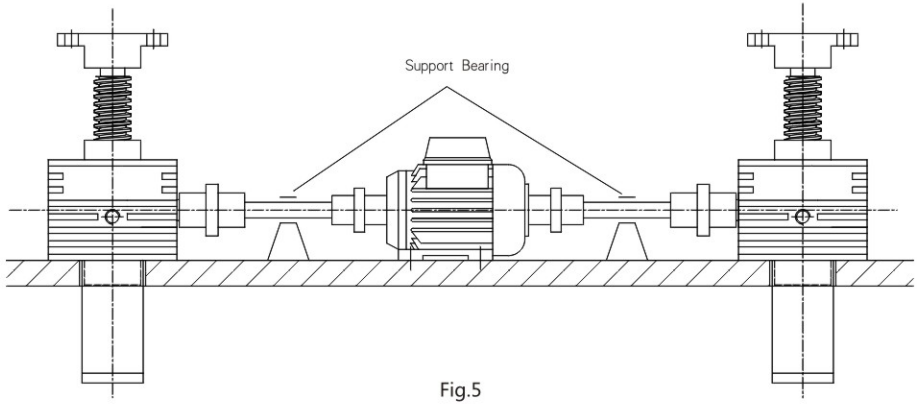

Fig.5

Use couplings without any torsion elasticity and connecting shaft with low inertia.

3.9 Lubrication check

Lubricant for screw jack housing; for quantity and type see chapter MAINTENANCE.

Before starting the lifting system, the acme screw has to be lubricated on its whole length, and also on the portion which is inside of the screw jack.

With high transmission speed or high duty cycles it has to be considered that a forced oil lubrication is required. (Contact the LUDE TRANSMISSION co., ltd. technical servicing)

3.10 Contact&proximity limit switches

To the screw jack mod.S special sensors to check the position of the acme screw can be applied.The devices we manufacture to be applied to the screw jack are of two types, control circuit see fig. 6.

Contact limit switches "FCG" (fig 7)

They work as switches that commute their state when they are concerned by stop nut. There are two types of sensor according to the difference type of reed contact (normally closed & normally opened).The sensors are usually applied on the two ends of protective tuber by some bolts, for checking the extern position of the stroke, but they can also be used to check intermediate positions of the acme screw. The commute state gives the signal which can be the electric circuit for the check of the motor.

Proximity limit switches "FCP" with inductive sens or (fig 7)

These sensors check the change-over of metallic elements and give an output signal that can be used in the electric circuit for the check of the motor. The device we design consists of a metallic disk M8 or M12 mm thick, and placed on 4mm distance to the surface of stop nut, they are usually placed at the end of the protective tube, in order to check the limit switch upper and lower position.

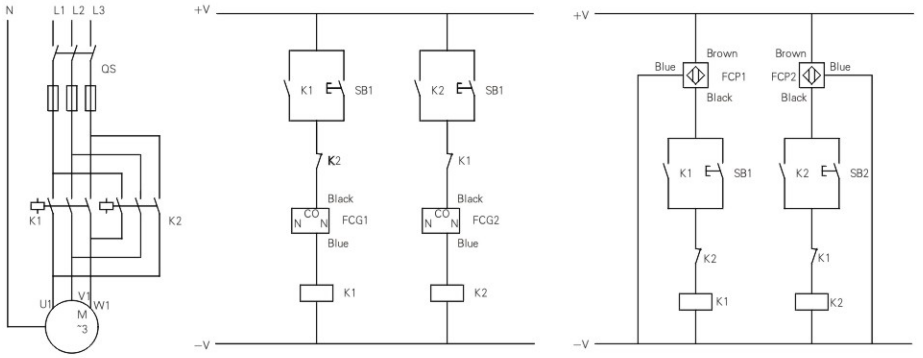

Fig.6

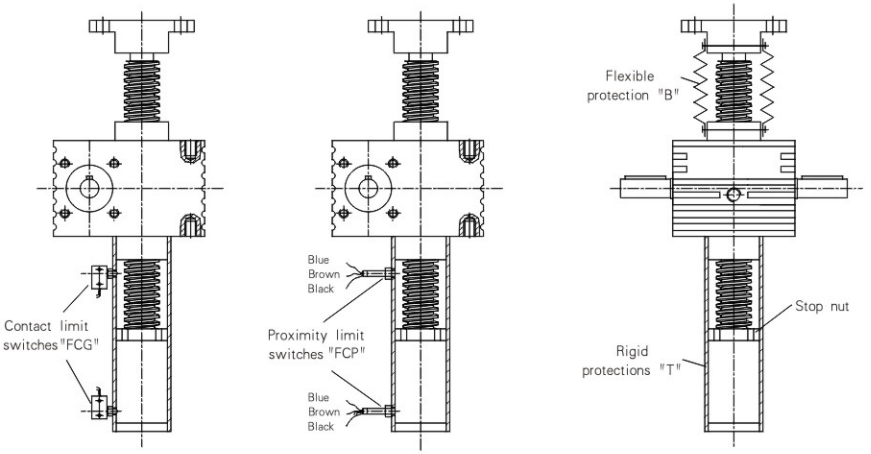

Fig.7 Fig.8

3.11 Stop nut with anti-turn function (FIG 8)

The stop nut is a safely accessory. It only prevents the acme screw of Mod. S, unscrewing out of the screw jack total or partially.It reduces the possibility of any risk, or less injuries & damages to thing or people.

The stop-nut, with a minimum safety dimension of 20mm beyond the required stroke. Therefore in the normal use of the required stroke it is not operating.

If due to a wrong operation or to the non-working of the limit switch devices the acme screw is stopped by beating against the stop nut,any possible mechanical damage must be checked.

⚠ **ATTENTION:** The function of stop nut is Anti-turn device, it can be removed when acme screw need to rotate. It must be supplied as standard on the ball screw for jacks Mod. S .

3.12 Rigid protection and flexible protection

Rigid protection "T" and flexible protection "B" are applied on the screw jack if we want to protect the screw jack from any impurity or polluting substances of the environment which might endanger the fit between the acme screw and bronze nut. (fig 8)

The rigid protections " T" are metallic tubes applied on the side of the screw jack, opposite to the push-one (only Mod.S), they are also used for supporting and fixing other parts, such as limit switch sensors and anti-turn device. The fix of the protecting tube to the screw jack housing is carried out by means of a metric right handed threaded portion.

The extensible flexible protections " B" are mounted on the drive part of the screw jack, they are available both in rubber and in sewn nylon, both for Mod. S and Mod. R, and they cover the entire range of sizes and strokes of LUDE TRANSMISSION production. The flexible protecting with bellow are fixed, according to the application, by cylindrical lead-in locked by metal ring, or by end flanges by means of two or more screws.

⚠ **ATTENTION:** Both rigid and flexible protections, due to the change of the volume of air during the acme screw translation, need adequate vent bores in order to prevent leaks of lubricant and distortion of the protection.

3.13 SAFETY NUTS

The safety nut " SN" is available both for Mod. S and Mod. R, the safety nut is usually applied, as an addition to the working nut, on plants which dangerous for the operator or in order to protect the plant in case of breaks of the working nut. The safety nut becomes operating in order to lock the load when the maximum wear predetermined for the working nut is reached, or in case of an exceptional break of nut. The safety proximity limit switches with inductive sensor check the change and give an output signal that we can know.

⚠ **ATTENTION:** The position of the safety nut, compared to this one of the working nut, depends on the direction of the load .Figure 9 shows an example of a proper application .With reference to fig.8, if the direction of the load is opposite, the safety nuts are not properly placed; they have to be positioned on the side opposite to working nut. If the reverse of the load is possible, it has to be examined together with LUDE TRANSMISSION technical service, what appropriate and sure solution to adopt is.The initial distance reduced 1/3 between working nut and safety nut,the safety proximity limit switches give an output signal.

3.14 Adjustable axial backlash device

The adjustable axial backlash device "AB" (only for screw jacks mod .S, see fig. 10) is a manual device which is suitable for limiting the axial backlashes originating during the fit between acme screw and bronze nut. The axial backlash between acme screw and bronze nut must be modified to a reversal of the load.

Referring to fig.10, in order to adjust the axial backlash, please follow the below given instructions:

— Release the security dowel "P" , placed on the side of the housing which locks the ring nut "G."

— With a compass wrench act on the ring nut "G" , by turning the right nut clockwise, the axial backlash will be reduced, by turning counter clockwise, the axial backlash will be increased.

— Check the size of the axial backlash by an axial pushpull movement of the acme screw.

— Lock the security dowel "P" after adjustment.

⚠ **ATTENTION:** An excessive clockwise tightening of the ring nut "G" will completely eliminate the axial backlash and will cause the very dangerous locking of the acme screw and the nut.

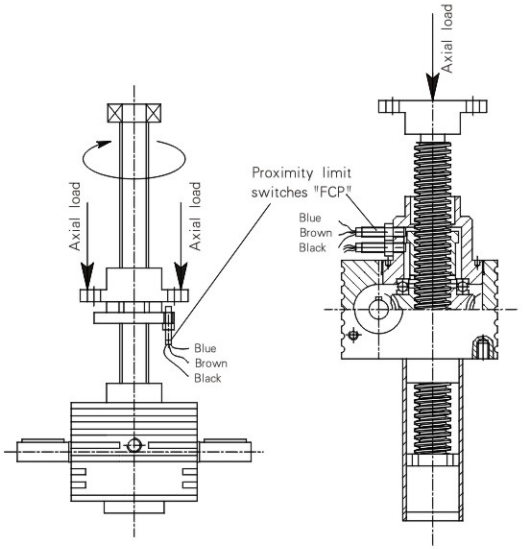

Fig.9

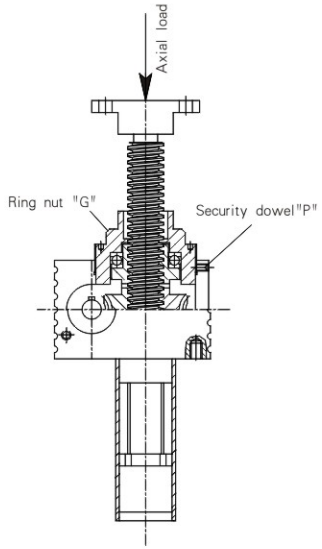

Fig.10

3.15 Nut wear check safety devices

There are many working nut wear check systems.

Anyway, all of them are connected with the check of the reciprocal positions of the working nut and another nut.

Periodic manual check by measuring the reduction of the distance between the nuts.

For safety nuts " SN" , automatic check by means of electric proximity limit switches, signalize that the maximum allowed wear level has been reached, stopping for safety reasons the working of the plant.

3.16 Electric motors

The mechanical jacks can also be run directly by electric motor. If the mounting is done trough direct connection with electric motor, it is necessary to check if they have been connected properly. There are three different kinds of connection:

—Connection through elastic coupling and motor with feet fixing, check the alignment of the screw jacks and motor shafts.

—Connection through elastic coupling and motor flange adapter, check the perfect fixing of the flanged motor, avoiding forcing.

—Connection through standard flange and hollow shaft in the screw jacks, check the proper fixing of the motor,avoiding forcing and by tightening well the fixing screws to ensure the alignment of the shafts.

Electric connections terminal board

—The electric connections of 3-phase motors have to be carried out following the precautions indicated by the manufacturers according to whether a DELTAconnection or STAR-connection has to be obtained.

Check the turning direction, if it' s not the one wanted, exchange V1and W1. See fig.11.

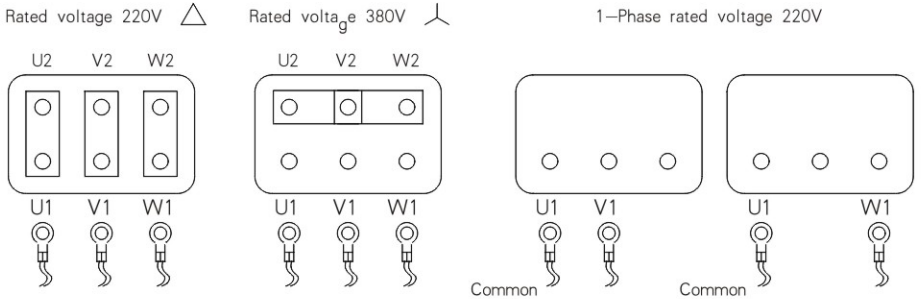

Fig.11

Fig.12

—The electric connections of 1-phase motors have to be carried out following the precautions indicated by the manufacturers. Check the turning direction, if it' s not that one wanted, exchange V1and W1. See fig.12.

—The electric connections of brake-motors have to be carried out following the precautions indicated by the manufacturers, or contact the Lude Transmission Co.,Ltd. technical servicing.

Electric connection to the net

The following examples of electric connections to the net of 3-phase, 1-phase and DC motors are shown.

See fig. 13,14,15. The following figures are examples of electric connection.

Connections AC 3-phase motor

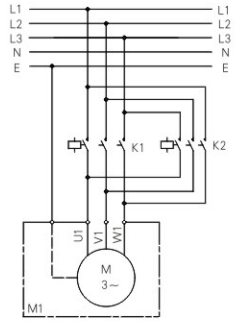

Fig.13

Connections AC 1-phase motor

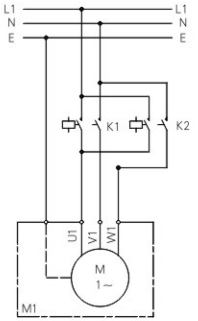

Fig.14

Connections D.C. motor

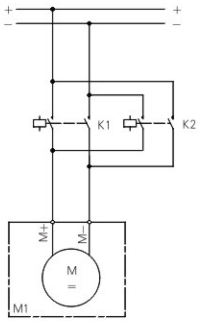

Fig.15

4 Maintenance

4.1 Regulations

⚠ The following regulations must be complied with:

- The relevant local regulations for the prevention of accidents.
- Generally recognized safety regulations.
- National regulations.

4.2 General Maintenance Notes

Maintenance and replacement work must be done by an expert maintenance technicians trained in the observance of applicable laws on health and safety at work and the special ambient problems attendant on the installation.

Before doing any work on the unit, the operator must first switch off power to the screw jacks drive system and ensure that it is out of service, as well as taking all necessary precautions against it being accidentally switched on again or its parts moving without warning.

All additional environmental safety precautions must be taken (e.g. elimination of residual gas or dust, etc.).

Before doing any maintenance work, activate all safety equipment and, if necessary, inform persons working in the vicinity. In particular, mark off the area around the unit(s) and prevent access to any equipment, which, if activated, might be the cause of unexpected health and safety hazards.

Replace worn components with original spare parts only.

Use the lubricants (oil and grease) recommended by the Manufacturer.

When working on the units, always replace gaskets and seals with new original ones.

If a bearing requires replacement, it is good practice to also replace the other bearing supporting the same shaft.

LUDE TRANSMISSION recommend replacing the lubricant after all maintenance work where a unit has been dismantled (completely or partially).

The above instructions are aimed at ensuring efficient and safe operation of the screw jack unit.

The Manufacturer declines all liability for injury and damage to components due to the use of non-original spare parts and non-routine work, which modifies the safety requirements without the express prior authorisation of the Manufacturer.
Refer to the specific spare parts list when ordering spare parts for products.
Do not dump polluting liquids, worn parts and maintenance waste into the environment. Dispose of all such materials as stipulated by applicable legislation.

4.3 Check Unit Operational Performance
Remove dust / dirt / debris deposits from the unit(s).
Check that noise at constant load does not vary. Excessive vibration or noise can indicate wear of a gear in a gearbox or failure of a bearing.
Check for lubricant leaks from the gaskets/seals, caps and casings.
Check all bolted joints/couplings for wear, deformation or corrosion and tighten them down fully without over tightening.
A periodic check of backlash between lead screw and worm gear (translating screw jacks) or lead screw and nut (rotating screw jacks) is recommended to check wear on internal threads of worm gear. Backlash in excess of 50% thread thickness indicates that a replacement will be necessary to replace the worm gear / nut assembly.
If driven by an electric motor check the power absorption and voltage against the nominal values given on the motor’ s nameplate.
The gearbox section of the screw jack operates with a maximum case temperature of 90°C (194°F). If this temperature is exceeded LUDE TRANSMISSION should be consulted.

4.4 Repair of LUDE TRANSMISSION Screw Jacks
LUDE TRANSMISSION recommend that a screw jack is returned to LUDE TRANSMISSION for repair. A full inspection and repair service is available.

5 Recommended Lubricants
Periodical maintenance to prolong the life time and to improve functioning of screw jack.

5.1 Maintenance and lubrication of screw nut
The lubricant for the acme screw bronze nut system with MOBIL XHP222 are recommended by LUDE TRANSMISSION Co., Ltd., film covers the whole length of the acme screw.

5.2 Lubrication of screw jacks housing
Inside the screw jack housing are placed worm, worm wheel and bearings. The lubricant for the acme screw bronze nut system with MOBIL EP3 are recommended by LUDE TRANSMISSION Co., Ltd., the quantity sees Table1、2、3.

Table 1

TYPE	SJA5	SJA/ SJB10	SJA/ SJB20	SJA/ SJB50	SJA/ SJB80	SJA/ SJB100	SJA/ SJB200	SJA/ SJB300	SJA/ SJB450	SJA700	SJA1000
WEIGHT (KG)	0.1/0.08	0.15/0.13	0.20/0.17	0.5/0.43	1.00/0.85	1.3/2 1.1/1.6	2.0/2.8 1.7/2.2	3.0/4.0 2.6/3.5	6.3/7.5 5.0/6	7.5/6.0	9/7.2

Table 2

TYPE	SWL0.5	SWL1	SWL2.5	SWL5	SWL10 /15	SWL20	SWL25	SWL35	SWL50	SWL100	SWL120
WEIGHT (KG)	0.06	0.08	0.1	0.25	0.5	0.75	1.1	1.9	2.2	2.5	2.5

Table 3

TYPE	JWM 002	JWM 005	JWM/ JWB010	JWM/ JWB025	JWM/ JWB050	JWM/ JWB100	JWM/ JWB150	JWM/ JWB200	JWM/ JWB300	JWM/ JWB500	JWM 750	JWM 1000
WEIGHT (KG)	0.03	0.06	0.08	0.1	0.25	0.5	0.65	0.75	1.8	2.2	2.4	2.5

5.3 Maintenance reference table
The main periodic checking and maintenance operations to be done are listed on following maintenance reference table 4. The equipment must be stopped and the current must be off before any maintenance operations. The checking frequency depends on application and the environment conditions. The recommended frequencies are referred to reference use conditions:
- Environment temperature: 25℃ ;
- Industrial applications functioning;
- Duty cycle: 20%/hour;

Table4

Frequency	Engagement type	Possible intervention
75- 90Working hours	- Oil level or lubrication checking - Oil loss checking - Screw purity checking - Lubrication checking of acme screw-nut or ball screw -nut	- Addition of oil or lubrication - Verifying and elimination of oil loss - Cleaning of acme screw - Lubrication of acme screw
150-180Working hours	- Acme screw-nut back lash checking (only if necessary) - Bronze nut wear checking * Safety bronze nut position checking (wear checking) * Elastic flexible protection checking	- Contact Lude Transmission technical service if necessary

6 Spare Parts

Recommendations:
Screw jacks are fully supported by LUDE TRANSMISSION. Spare parts and repairs are available.
It is recommended that when a screw jack is used in a production critical environment where the cost of downtime far exceeds the cost of the screw jack a complete spare screw jack unit is stocked by the customer. This allows the worn/damaged unit to be returned to LUDE TRANSMISSION for repair by trained personnel. Alternatively it allows time for a new replacement screw jack to be manufactured.
When enquiring about replacement parts or a complete unit please send the following information to LUDE TRANSMISSION:
- Screw Jack Serial Number (found on product name plate - essential)
- Screw Jack Model Number (found on product name plate - essential)
- Original Purchase Order Number (if known).
- LUDE TRANSMISSION Sales Order Number (if known)
- Your Contact Details (essential)

7 Storage & Warehousing

7.1 General Storage Recommendations
Recommendations for storing the products are indicated below:
Store in a clean and dry environment, free from dirt and dust.
Screw Jack Storage Temperature: -10°C to +50°C (+14°F to +122°F).
Do not store the unit in excessively humid conditions or where it is exposed to the weather (do not store outdoors).
Do not place product directly on the ground.
Store product(s) on a stable base and make sure that it is not subjected to accidental displacement.
Store the unit(s) in the packaging provided for shipping (if allowed).
If products are to be stored for more than 6 months, the following additional precautions must be taken:
- Cover all machined external surfaces with a rust-proofing product.
- Fill the unit with appropriate lubricant if not supplied with lubricant.
- Ensure that all screw jacks are stored in the fully retracted (closed) position.
- All rotating parts should be turned by hand a few revolutions per month. If this is not practical, then an external drive should be used to run the unit(s) for a few revolutions.

7.2 Long Term Storage
In the event that a screw jack(s) is to be stored for more than 6 months prior to installation/commissioning, LUDE TRANSMISSION Co., Ltd should be consulted to discuss preservation requirements.

8 Disposal of Units

8.1 General Disposal Guidance
This must only be done by operators trained in the observance of applicable laws on health and safety at work.
Do not dump non-biodegradable products, lubricants and non-ferrous materials (rubber, PVC, resins, etc.) into the environment. Dispose of all such materials as stipulated by applicable environmental protection legislation.
Do not attempt to re-use parts or components which appear to be in good condition after they have been checked and/or replaced by qualified personnel and declared unsuitable for use.

9 Warranty

The Company warrants that any Goods sold by it under LUDE TRANSMISSION standard terms and conditions of sale will be free from defects caused by faulty materials or poor workmanship but gives

LINEAR MOTION
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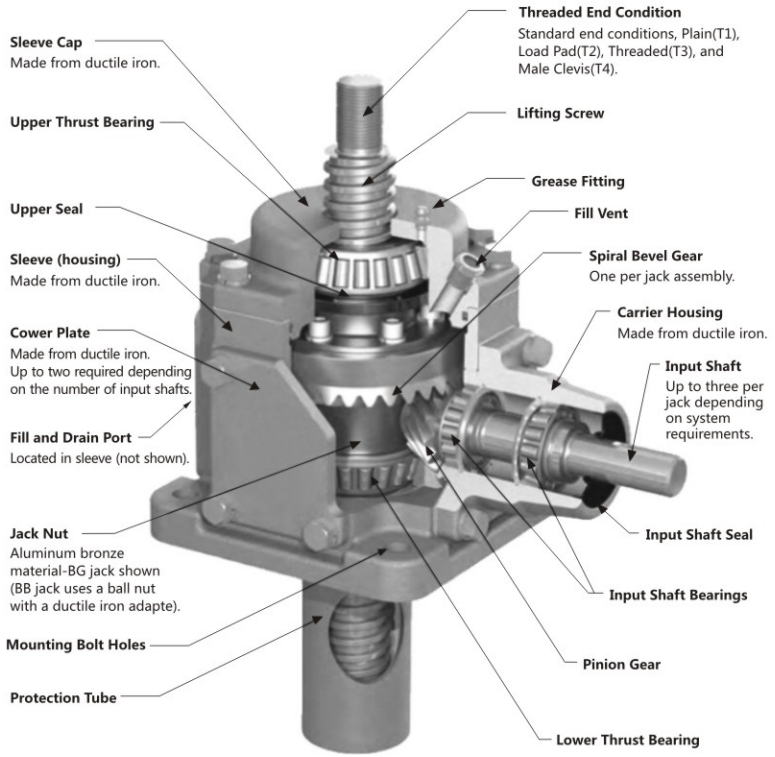
no warranty and makes no representation whatsoever express or implied as to any other matters including without limitation condition merchantability or fitness for any purpose.
The Company shall incur no liability under this warranty unless:
- The Company is promptly notified in Writing upon discovery of any such defects by the Customer and the Customer forthwith ceases to use the defective Goods unless otherwise authorised by the Company;
- The defective item is immediately returned to the Company, transportation charges being prepaid by the Customer or the Company is, at its option, given the opportunity to remedy any defect.

The Company's warranty as specified above is limited to a period of 12 months from the date of delivery (ex-works LUDE TRANSMISSION) and its liability shall be limited to replacing, repairing or issuing credit at its option for any Goods returned by the Customer within the aforesaid period.
The Company shall not be liable for consequential loss or damage by reason of any defect in (or failure to comply with any written estimate of performance of) Goods supplied by the Company whether original or substituted.
The Customer will indemnify the Company against all third party claims made in respect of the Goods.

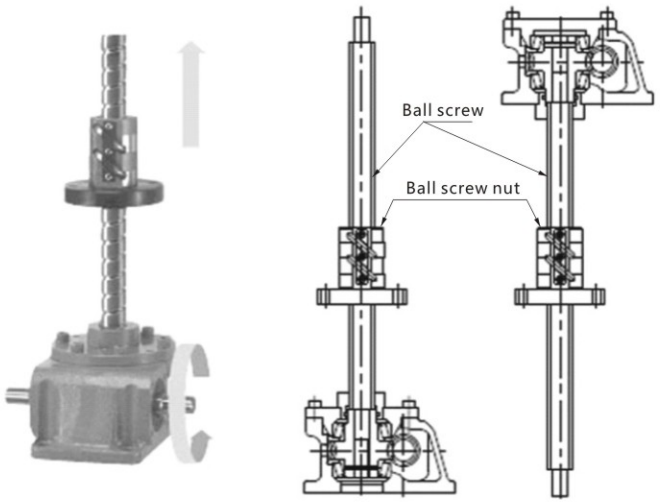
10 The bevel gear screw jack



Before leaving the factory, the machine has been filled with grease, grease brand is 2# lithium ester, using Mobil, Shell and Great Wall brands are preferred.

Oil change:
The lubricating oil should be replaced after 300 ~ 400 hours of operation of the machine for the first time, and then every 1500 ~ 2000 hours. In the harsh working environment, high temperature, large dust working occasions should be every half a month to check the lubricating oil, found that there is dirt in the lubricating oil is replaced, in order to keep the lubricating oil clean, prolong the service life of the lift, improve economic benefits.
When replacing the lubricating oil, try to release the accumulated oil in the box first, and fill with special grease filling equipment. The filling amount is reached 70% of the box capacity is appropriate.

11 Ball nut lubrication



The lubricants and greases used for ball nuts are lithium soap based lubricants with a viscosity of 30~140CST (40℃) using ISO class 32~100.

Selection basis:
1. High speed or low temperature environment with invitation: the use of low viscosity lubricant base oil.
2. High temperature, high load or sloshing, low speed use: use lubricant with higher viscosity of base oil.

Table 4 shows general indicators of lubricant inspection and replenishment intervals. Wipe off the old

lubricant attached to the lead screw shaft before replenishing.

Table 4 Lubricant inspection and feeder

The lubrication methods	Check interval	Check the project	Recharge or replace intervals
Automatic interval feeding	Every week	Amount of oil, dirt	Supply during each inspection but make appropriate replenishment according to the tank capacity.
grease	The initial work period is 2-3 months	No foreign matter mixed in	Replenishment is usually made annually but is appropriate depending on examination results.
Oil bath	Daily before work	The oil level of management	Appropriate supplement according to consumption status.

Lubrication and Maintenance
SWL/JWM/SJA/SJB/SCA/SCB series of screw jack
The worm gear, worm shaft, bearing and the screw has been well lubricated at the factory, the lubricating volume exceeding the volume stated in the table will impinge the mechanical efficiency of the screw jack meantime increase the possibility of the oil leakage.

Screw Jack	Worm gearbox		Actuating parts	
	Lubricant	Quantity[g]	Lubricant	Quantity Per 1m[g]
SJA5/SWL0.5/JWM/JWB002/005	MOBILEP3 or equivalent	80	MOBIL XHP222 or equivalent	300
SJA/SJB10/SWL1/JWM/JWB010		130		400
SJA/SJB/SCA/SCB20/21/22/SWL2.5/JWM/JWB025		170		550
SJA/SJB/SCA/SCB50/51/SWL5/JWM/JWB050		430		650
SJA/SJB/SCA/SCB80/81		850		750
SJA/SJB/SCA/CSB100/101/SWL10/15/JWM/JWB100/150		1100		850
SJA/SJB/SCA/SCB200/201/SWL20/JWM/JWB200		1700		1000
SJA/SJB300/SWL/25/JWM/JWB300		2550		1500
SJA/SJB450/SWL35/JWM/JWB500		3570		2000
SJA/SJB700/SWL50/JWM/JWB750		5100		2600
SJA/SJB1000/SWL/100/120/JWM/JWB1000		7200		3300

Choose different types of grease according to different working environments (high or low temperature environment)
Special grease for the food industry is also available
For the high duty cycle screw jack, the grease will lose its lubricating function; entry of granule contaminants might deteriorate the working performance. It is
advised to do a thorough cleaning and re-lubricating the screw jack.
It is recommend to use the grease can which is able to supply the continuous lubrication to the inside surface of the housing automatically.
Appropriate lubrication to the lubricating board inside the rear tube should be carried out periodically. The nut and the screw should be lubricated appropriately every 200 working hours or according to the specific environment.